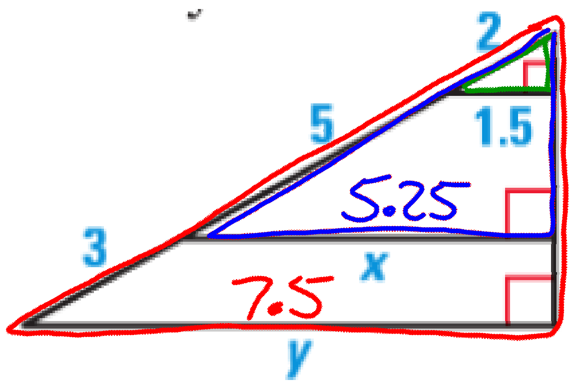
01/15/14 Agenda

- Warm Up
- Review Homework
    - Worksheet 8 - Parallel Lines & Angle Bisectors
- Review - Sections 6.1 - 6.6
- Classwork/Homework - Review Packet
    - We'll review it tomorrow
    - It will be collected before the Test on Friday
- Time to turn in late work!!!
- Tomorrow (01/16) - Target Review Day
- **Friday 01/17 - Unit 6 Test**

Warm Up - Homework out Find the values of x and y



$x = 5.25$

$y = 7.5$

$\frac{\text{SMALL}}{\text{BIG}} = \frac{2}{7} = \frac{1.5}{x}$

$2x = 7 \cdot 1.5$

$2x = 10.5$

$x = 5.25$

$\frac{\text{Small}}{\text{Big}} = \frac{2}{10} = \frac{1.5}{y}$

$2y = 10 \cdot 1.5$

$2y = 15$

$y = 7.5$

Unit Review: Sections 6.1 - 6.6   Test FRIDAY!!!

6.1 - Ratios & Proportions. *Targets 6A & 6B*

- Ratios
  - Simplify ratios
  - Perform conversions
- Proportions
  - Use cross products to solve proportions
  - Write proportions from work problems
  - Use proportions to solve geometry problems

6.3 - Use Similar Polygons *Targets 6C & 6D*

- Apply properties of similar polygons
  - Corresponding angles are congruent
  - Corresponding side lengths are proportional
  - Any corresponding lengths are proportional
- Calculate Scale Factor (ratio of corresponding lengths)
- Write similarity statements
  (order of vertices is important)
- Solve for missing sides in similar polygons

Unit Review: *Sections 6.1 - 6.6* Test FRIDAY!!!

6.4 & 6.5 - Prove Triangles Similar *Target 6E*

- ***AA~*** (Angle, Angle similarity
  - If 2 angles are ≅, the triangles are similar
- ***SSS~*** (Side, Side, Side similarity)
  - If all 3 corresponding sides are proportional, the triangles are similar
- ***SAS~*** (Side, Angle, Side similarity)
  - If 2 sides are proportional and the included angle is ≅, the triangles are similar

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6.6 - Use Proportionality Theorems *Target 6F*

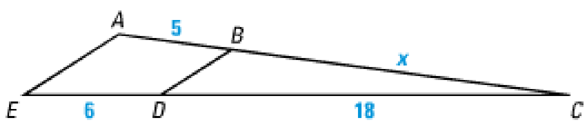
- If a line is parallel to one side of a triangle and intersects the other two sides, it divides the sides proportionally.
- If a line divides two sides of a triangle proportionally, it is parallel to the third side.
- If 3 parallel lines intersect 2 transversals, they divide the transversals proportionally.
- If a ray bisects an angle of a triangle, it divides the opposite side into segments whose lengths are proportional to the lengths of the other two sides.

BIG IDEAS

For Your Notebook

Using Ratios and Proportions to Solve Geometry Problems

You can use properties of proportions to solve a variety of algebraic and geometric problems.



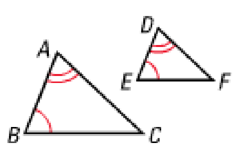
For example, in the diagram above, suppose you know that $\frac{AB}{BC} = \frac{ED}{DC}$. Then you can write any of the following relationships.

$\frac{5}{x} = \frac{6}{18}$ $\quad 5 \cdot 18 = 6x$ $\quad \frac{x}{5} = \frac{18}{6}$ $\quad \frac{5}{6} = \frac{x}{18}$ $\quad \frac{5+x}{x} = \frac{6+18}{18}$

Showing that Triangles are Similar

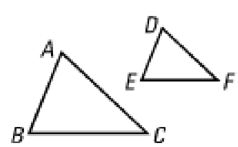
You learned three ways to prove two triangles are similar.

AA Similarity Postulate



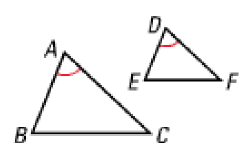
If $\angle A \cong \angle D$ and $\angle B \cong \angle E$, then $\triangle ABC \sim \triangle DEF$.

SSS Similarity Theorem



If $\frac{AB}{DE} = \frac{BC}{EF} = \frac{AC}{DF}$, then $\triangle ABC \sim \triangle DEF$.

SAS Similarity Theorem



If $\angle A \cong \angle D$ and $\frac{AB}{DE} = \frac{AC}{DF}$, then $\triangle ABC \sim \triangle DEF$.

Unit Review: Sections 6.1 - 6.6

Test FRIDAY!!!

6.1 Ratios, Proportions, and the Geometric Mean
pp. 356–363

EXAMPLE

The measures of the angles in $\triangle ABC$ are in the extended ratio of 3 : 4 : 5. Find the measures of the angles.

Use the extended ratio of 3 : 4 : 5 to label the angle measures as $3x°$, $4x°$, and $5x°$.

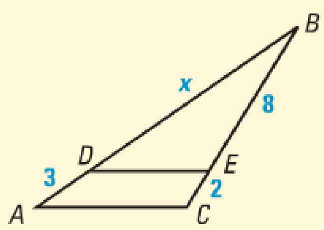
$3x° + 4x° + 5x° = 180°$	Triangle Sum Theorem
$12x = 180$	Combine like terms.
$x = 15$	Divide each side by 12.

So, the angle measures are $3(15°) = 45°$, $4(15°) = 60°$, and $5(15°) = 75°$.

6.2 Use Proportions to Solve Geometry Problems
pp. 364–370

EXAMPLE

In the diagram, $\frac{BA}{DA} = \frac{BC}{EC}$. Find BD.

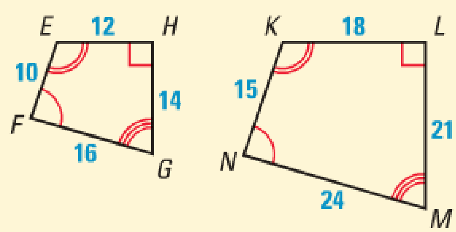


$\frac{x+3}{3} = \frac{8+2}{2}$	Substitution Property of Equality
$2x + 6 = 30$	Cross Products Property
$x = 12$	Solve for x.

6.3 Use Similar Polygons
pp. 372–379

EXAMPLE

In the diagram, $EHGF \sim KLMN$. Find the scale factor.

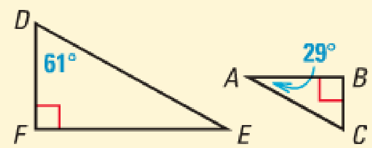


From the diagram, you can see that $\overline{EH}$ and $\overline{KL}$ correspond. So, the scale factor of $EHGF$ to $KLMN$ is $\frac{EH}{KL} = \frac{12}{18} = \frac{2}{3}$.

6.4 Prove Triangles Similar by AA *pp. 381–387*

EXAMPLE

Determine whether the triangles are similar. If they are, write a similarity statement. Explain your reasoning.

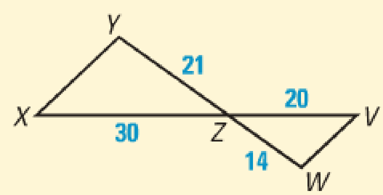


Because they are right angles, $\angle F \cong \angle B$. By the Triangle Sum Theorem, $61° + 90° + m\angle E = 180°$, so $m\angle E = 29°$ and $\angle E \cong \angle A$. Then, two angles of $\triangle DFE$ are congruent to two angles of $\triangle CBA$. So, $\triangle DFE \sim \triangle CBA$.

6.5 Prove Triangles Similar by SSS and SAS *pp. 388–395*

EXAMPLE

Show that the triangles are similar.



Notice that the lengths of two pairs of corresponding sides are proportional.

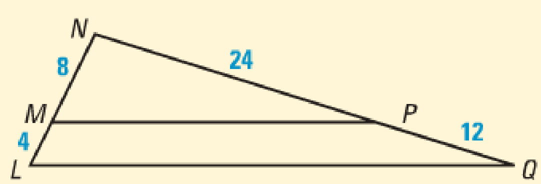
$$\frac{WZ}{YZ} = \frac{14}{21} = \frac{2}{3} \qquad \frac{VZ}{XZ} = \frac{20}{30} = \frac{2}{3}$$

The included angles for these sides, $\angle XZY$ and $\angle VZW$, are vertical angles, so $\angle XZY \cong \angle VZW$. Then $\triangle XYZ \sim \triangle VWZ$ by the SAS Similarity Theorem.

6.6 Use Proportionality Theorems *pp. 397–403*

EXAMPLE

Determine whether $\overline{MP} \parallel \overline{LQ}$.



Begin by finding and simplifying ratios of lengths determined by $\overline{MP}$.

$$\frac{NM}{ML} = \frac{8}{4} = \frac{2}{1} \qquad \frac{NP}{PQ} = \frac{24}{12} = \frac{2}{1}$$

Because $\frac{NM}{ML} = \frac{NP}{PQ}$, $\overline{MP}$ is parallel to $\overline{LQ}$ by Theorem 6.5, the Triangle Proportionality Converse.

1 QT = 32 OZ.

1 GAL = 16 CUPS

1 YD = 3 FT

1 KG = 2.2 LB

1 MI = 5280 FT.

1 M = 100 CM